CLAIMS

1. Thermal ink jet printhead (40) comprising nozzles (56), chambers (57) in turn comprising resistors 27, and a groove (45), made in a substrate (140), suitable for fluidly ducting ink (142) to said chambers (57)

characterized in that said groove (45) comprises a first portion (45') produced by means of a dry etching, and a second portion (45'') produced by means of an electrochemical etching.

2. Printhead according to claim 1, characterized in that said substrate (140) is made of silicon.

3. Printhead according to claim 2, characterized in that said nozzles (56) and said resistors (27) are disposed in columns parallel to one and the same geometric reference (63).

4. Printhead according to claim 3, characterized in that said first portion (45') of said groove (45) has a substantially rectangular shape having a greater side parallel to said geometric reference (63).

5. Printhead according to claim 3, characterized in that said second portion (45'') of said groove (45) has a substantially rectangular shape having a greater side parallel to said geometric reference (63).

6. Printhead according to claim 3, characterized in that said first portion (45') of said groove (45) also comprises a wet etching having a substantially rectangular shape and a greater side parallel to a crystallographic axis of said silicon which constitutes said substrate (140), and that said crystallographic axis cannot be parallel to said geometric reference (63).

7. Printhead according to claim 1, characterized in that it also comprises an N-well layer (36).

8. Printhead according to claim 1, characterized in that it also comprises a P+ layer (37).

9. Printhead according to claim 1, characterized in that it also includes an anti-cavitation layer (26) of electrically conducting material.

10. Printhead according to claim 9, characterized in that said anti-cavitation layer (26) of electrically conducting material forms a single equipotential surface through said head (40).

11. Printhead according to claim 9, characterized in that said anti-cavitation layer (26) is made of tantalum.

12. Printhead according to claim 11, characterized in that said anti-cavitation layer (26) of tantalum is between 0.4 and 0.6 μm thick.

13. Printhead according to claim 9, characterized in that said anti-cavitation layer (26) is covered by a layer of gold.

14. Printhead according to claim 13, characterized in that said layer of gold is between 100 and 200 Å thick.

15. Printhead according to claim 9, characterized in that it also comprises a first metal (25) or a second metal (31) and that said first metal (25) or said second metal (31) forms one or more electric contacts with said anti-cavitation layer 26.

16. Process for manufacturing a thermal ink jet printhead (40) comprising nozzles (56), chambers (57) and a groove (45) suitable for fluidly ducting ink (142) to said chambers (57), comprising the steps of:

- (200) arranging a wafer (66) containing a geometric reference (63), and having an upper face (170) and a lower face (171),

characterized in that it also comprises the step of:

- (203) producing a first portion (45') of said groove (45) by means of a dry etching on said lower face (171), and
- (216) producing a second portion (45'') of said groove (45) by means of an electrochemical etching.

17. Process according to claim 16, characterized in that it also comprises the step of:

- (205) producing oblique walls in said first portion (45') of said groove (45) by means of a wet etching.

18. Process according to claim 16, characterized in that it also comprises the step of:

- (208) producing a N-well layer (36) on said upper face (170);
- producing a P+ contact (37) on said upper face (170);
- producing an anti-cavitation layer (26) of electrically conducting material on said upper face (170);

19. Process according to claim 18, characterized in that said step (216) of producing said second portion (45'') of said groove (45) by means of said electrochemical

etching uses as the electrode said anti-cavitation layer (26) of electrically conducting material.

20. Process according to claim 16, characterized in that it also comprises the steps of:

- (210) growing sacrificial layers (54) on said upper face (170);
- (212) growing casts (156) on said sacrificial layers (54);
- (220) removing said casts (156) and said sacrificial layers (54).

21. Process according to claim 20, characterized in that said step (210) of growing sacrificial layers (54) on said upper face (170) is substituted by a step of

- (211) growing metallic sacrificial layers (54') on said upper face (170); and

said step (220) of removing said casts (156) and said sacrificial layers (54) is substituted by the steps of:

- (221) removing said casts (156); and
- (222) removing said sacrificial layers (54').

22. Process according to claim 21, characterized in that said step (211) of growing metallic sacrificial layers (54') on said upper face (170), also comprises a step of growing protuberances (76) using at least in part a lateral growth phenomenon.

23. Process according to claim 18, characterized in that it also comprises a step of growing a first metal (25) or a second metal (31), and that said anti-cavitation layer (26) and said first metal (25) or said second metal (31) are extended locally to said P+ contact (37).

24. Process according to claim 23, characterized in that it also comprises a step (211) of growing metallic sacrificial layers (54') on said upper face (170) and a step of growing protuberances (76) using a vertical growth phenomenon.